

Example: Email sent to Operators in 2021 and 2023

From: CARB Methane Plume Detection
Sent: Monday, June 26, 2023 3:47 PM
To: [redacted]
Subject: Methane Plume Detection; Follow-up Requested [INC-66]
Attachments: output_plumes_GAO20230614t193553p0000-B_l3a-ch4-mf-v0.tif

Dear [redacted],

This is a notification that a plume of methane has been detected by an aircraft at a piece of infrastructure belonging to your company. This detection was made on the date indicated below by a hyperspectral imager developed by NASA's Jet Propulsion Laboratory. This is not a citation or enforcement action, but rather, part of a research effort in preparation for future satellite capabilities that will detect methane plumes and produce this type of data continuously. Additional information about this research project is provided at the end of this email. We ask that you verify the source of the plume as requested below and notify us of your findings. At this [time](#) we are only notifying you, however, follow up inspections by regulating agencies to identify and/or confirm the facility is in compliance with relevant laws may be taken. As part of our research efforts, information about the plume may later be made public on a web portal (<https://msf.carb.arb.ca.gov>).

| Plume ID | Candidate ID | Plume Latitude (deg) | Plume Longitude (deg) | Date | Time (Pacific) |
|----------|---|----------------------|-----------------------|------------|----------------|
| 117 | GAO20230614t193553p0000-B_l3a-ch4-mf-v0 | 35.2805 | -119.604 | 2023-06-14 | 12:35:53 |

What are we asking you to do? We ask that you carefully inspect the attached imagery and verify that this piece of infrastructure belongs to you. If it does not belong to you but you know the owner, please let us know. If you are the owner of the infrastructure in question, we ask that you conduct measurements on the ground to verify that there is a methane leak at the indicated infrastructure. Note that the coordinates above are an approximate location of the leak and should not be treated as a precise location. If the leak can be fixed, please do so. Finally, please fill out the attached feedback form and return it to us within 1-2 weeks.

A number of resources are provided with this email. These include:

- Static plume images (.jpg files, embedded in the body of this email): These non-interactive images show the detected plume overlaid on a satellite map of the area, with multiple zoom levels. Note that the background image may not be up-to-date and may not reflect recent land use changes.
- GeoTiff (.tif file): Contains a georeferenced methane plume image captured by the airborne sensor. While not necessary, you may wish to import this file into a GIS platform of your choice, such as Google Earth or ArcGIS, to interactively view the plume image.
- A feedback form (.xlsx file): After inspecting your equipment and repairing the leak (if possible), we request that you fill out this form and send it back to us in a timely manner. If you are unable to open the Excel spreadsheet, please let us know and we can provide an alternate format.

Additional information about this research project:

CARB has used remote sensing technology to detect individual methane plumes coming from various industrial sectors in California, including oil and gas, waste management, and agriculture since 2016. CEC/NASA/CARB sponsored JPL to survey most of the state in several campaigns, during a study we refer to as the [California Methane Survey](#), and found that a large number of plumes can be identified with this remote sensing technique. A [follow-up study](#) showed that nearly half of the leaks detected with this technology could be quickly repaired. Results from this project and previous project will be used in preparation for similar data obtained from satellites in the future.

Static Images:

Left: **Plume image**



Right: **Background only (plume removed)**



Zoomed out:



Figure A1. An example of the standard email sent to operators where plumes were detected.

Example: Operator Feedback Form sent in 2021

CARB Methane Satellite Dry Run – Industry Follow-up

Fill out this form for each notification from CARB of a plume identified from the plane. Complete all fields if possible. *Items in italics are optional but preferred.*

Note: For components subject to CARB's Oil and Gas Methane Regulation,¹ leaks measured by the operator at or above 1,000 ppm using US EPA Method 21 must be repaired according to the timeframes in the regulation and must be reported to CARB as part of operators' annual LDAR reports. Per the regulation, all leaks detected with the use of an optical gas imaging (OGI) instrument must be measured using Method 21 within two calendar days of initial OGI leak detection.

| | |
|---|-----|
| Operator | |
| Contact information | |
| Plume ID (provided by CARB) | |
| Lat/Lon coordinates (provided by CARB) | |
| Date of on the ground follow-up | |
| Instrument used to locate the leak (e.g., OGI camera, Method 21 instrument) | |
| Was an emission source identified? | |
| What type of facility ² were the emissions coming from? | |
| What type of equipment ³ were the emissions coming from? | |
| What type of component ⁴ were the emissions coming from (if applicable)? | |
| Was the source of emissions a leak (unintentional) or a vent (intentional)? | |
| Instrument used to measure concentration of the leak (Method 21 type instrument) | |
| Concentration of the leak | ppm |

¹ California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4. Subarticle 13: Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities.

² Examples of possible facility types: oil or gas production facility, gathering and boosting station, transmission compressor station, natural gas processing plant, natural gas storage facility.

³ Examples of possible equipment types: tank, pressure separator, sump, pond, reciprocating natural gas compressor, centrifugal natural gas compressor, continuous high bleed pneumatic device, continuous low bleed pneumatic device, intermittent bleed pneumatic device, pneumatic pump, open well casing vent.

⁴ Examples of possible component types: connector, valve, flange, open-ended line.

| | |
|---|--|
| Mitigation actions taken (if it was a leak) | |
| Date of mitigation actions | |
| Additional Comments | |
| | |
| 2 | |

Figure A2. The two-page operator feedback form sent to operators in 2021 for each leak detection.

Complete Incidence List from 2021

Table A1. List of all incidences that were sent to operators in 2021 (note: notification, inspection, and reply dates were not logged in 2020 and are not included here).

| Incidence ID | Earliest Plume Measurement | Number of Plumes in Incidence | Sector | Incidence Emission Type | Incidence Notification Date | Incidence Inspection Date | Incidence Mitigation Date | Incidence Reply Date |
|--------------|----------------------------|-------------------------------|-----------|-------------------------|-----------------------------|---------------------------|---------------------------|----------------------|
| 1 | 11/5/2021 | 4 | Oil & Gas | Type B | 11/16/2021 | 11/17/2021 | | 11/29/2021 |

| | | | | | | | | |
|----|-----------|---|-----------|-----------|------------|------------|------------|------------|
| 4 | 11/5/2021 | 1 | Oil & Gas | Not Found | 11/12/2021 | 11/16/2021 | | 11/19/2021 |
| 5 | 11/5/2021 | 2 | Oil & Gas | Type A | 11/8/2021 | 11/9/2021 | 11/9/2021 | 11/9/2021 |
| 6 | 11/5/2021 | 1 | Oil & Gas | Type A | 11/12/2021 | 11/16/2021 | 11/18/2021 | 11/19/2021 |
| 8 | 11/5/2021 | 1 | Oil & Gas | Type A | 11/8/2021 | 11/9/2021 | 11/15/2021 | 11/17/2021 |
| 9 | 11/5/2021 | 2 | Oil & Gas | Type A | 11/8/2021 | 11/9/2021 | 11/9/2021 | 11/16/2021 |
| 10 | 11/5/2021 | 1 | Oil & Gas | Type A | 11/10/2021 | 11/10/2021 | 11/10/2021 | 11/16/2021 |
| 11 | 11/5/2021 | 3 | Oil & Gas | Type A | 11/12/2021 | 11/12/2021 | | 12/17/2021 |
| 12 | 11/5/2021 | 3 | Oil & Gas | Type C | 11/12/2021 | 11/10/2021 | | 11/16/2021 |
| 13 | 11/5/2021 | 1 | Oil & Gas | Type A | 11/10/2021 | 11/10/2021 | 11/10/2021 | 11/10/2021 |
| 14 | 11/5/2021 | 1 | Oil & Gas | Type A | 11/10/2021 | 11/11/2021 | 11/16/2021 | 11/16/2021 |
| 15 | 11/6/2021 | 2 | Oil & Gas | Type A | 11/8/2021 | 11/9/2021 | 11/10/2021 | 11/16/2021 |
| 16 | 11/7/2021 | 1 | Landfills | Type C | 11/12/2021 | 12/1/2021 | 12/1/2021 | 12/1/2021 |
| 17 | 11/7/2021 | 1 | Landfills | Type B | 11/12/2021 | | | 12/7/2021 |
| 18 | 11/7/2021 | 1 | Landfills | Type A | 11/12/2021 | 11/12/2021 | 11/19/2021 | 6/16/2022 |
| 19 | 11/7/2021 | 1 | Landfills | Type C | 11/12/2021 | | | 12/7/2021 |
| 22 | 11/8/2021 | 1 | Oil & Gas | Type A | 11/12/2021 | 11/18/2021 | 11/25/2021 | 11/25/2021 |
| 23 | 11/8/2021 | 2 | Oil & Gas | Type C | 11/12/2021 | 11/17/2021 | 11/18/2021 | 11/19/2021 |
| 24 | 11/8/2021 | 1 | Oil & Gas | Type A | 11/12/2021 | 11/15/2021 | 12/8/2021 | 12/17/2021 |
| 25 | 11/8/2021 | 1 | Oil & Gas | Not Found | 11/12/2021 | 11/15/2021 | | 11/17/2021 |
| 26 | 11/8/2021 | 1 | Oil & Gas | Type A | 11/12/2021 | 11/12/2021 | 11/12/2021 | 11/19/2021 |
| 28 | 11/8/2021 | 1 | Oil & Gas | Type A | 11/12/2021 | 11/15/2021 | 11/15/2021 | 11/15/2021 |
| 29 | 11/8/2021 | 1 | Oil & Gas | Type A | 11/12/2021 | 11/15/2021 | 11/15/2021 | 11/19/2021 |
| 30 | 11/8/2021 | 1 | Oil & Gas | Type A | 11/12/2021 | 11/15/2021 | 11/15/2021 | 11/19/2021 |
| 32 | 11/8/2021 | 1 | Oil & Gas | Type C | 12/17/2021 | | | 12/23/2021 |

| | | | | | | | | |
|----|------------|---|-----------|-----------------|------------|------------|------------|------------|
| 35 | 11/10/2021 | 2 | Landfills | Did not Respond | 11/16/2021 | | | |
| 36 | 11/10/2021 | 2 | Landfills | Type C | 11/16/2021 | | | 12/7/2021 |
| 37 | 11/10/2021 | 1 | Landfills | Type A | 11/16/2021 | 12/1/2021 | 12/1/2021 | 3/1/2022 |
| 38 | 11/10/2021 | 2 | Landfills | Type A | 11/16/2021 | 11/22/2021 | 11/22/2021 | 3/1/2022 |
| 39 | 11/10/2021 | 3 | Landfills | Type A | 11/16/2021 | 11/22/2021 | 11/22/2021 | 3/1/2022 |
| 40 | 11/10/2021 | 2 | Landfills | Not Found | 11/16/2021 | | | 7/1/2022 |
| 41 | 11/10/2021 | 2 | Landfills | Type B | 11/16/2021 | 11/11/2021 | | 7/1/2022 |
| 42 | 11/10/2021 | 1 | Oil & Gas | Did not Respond | 11/17/2021 | | | |
| 43 | 11/12/2021 | 2 | Oil & Gas | Type B | 11/16/2021 | 12/2/2021 | | 12/14/2021 |
| 44 | 11/12/2021 | 1 | Oil & Gas | Type B | 11/16/2021 | 11/18/2021 | | 12/2/2021 |
| 45 | 11/12/2021 | 1 | Oil & Gas | Type A | 11/16/2021 | 11/16/2021 | 11/18/2021 | 12/2/2021 |
| 46 | 11/12/2021 | 1 | Oil & Gas | Type C | 11/16/2021 | | | 12/3/2021 |
| 47 | 11/12/2021 | 2 | Oil & Gas | Type C | 11/16/2021 | 11/12/2021 | | 12/14/2021 |
| 48 | 11/12/2021 | 2 | Oil & Gas | Type C | 11/16/2021 | 11/12/2021 | | 12/14/2021 |
| 50 | 11/12/2021 | 1 | Oil & Gas | Type C | 11/16/2021 | 11/17/2021 | | 11/19/2021 |
| 69 | 11/12/2021 | 1 | Oil & Gas | Type A | 11/16/2021 | 12/6/2021 | 12/6/2021 | 12/8/2021 |
| 70 | 11/12/2021 | 1 | Oil & Gas | Not Found | 11/16/2021 | 11/17/2021 | | 12/6/2021 |
| 72 | 11/12/2021 | 1 | Oil & Gas | Type B | 11/16/2021 | 11/17/2021 | | 12/17/2021 |
| 73 | 11/12/2021 | 2 | Oil & Gas | Type B | 11/16/2021 | | | 12/10/2021 |
| 74 | 11/12/2021 | 1 | Oil & Gas | Not Found | 11/16/2021 | 11/17/2021 | | 11/19/2021 |
| 75 | 11/12/2021 | 2 | Oil & Gas | Type C | 11/16/2021 | 11/18/2021 | 11/18/2021 | 11/19/2021 |
| 77 | 11/13/2021 | 1 | Oil & Gas | Type A | 11/16/2021 | 11/17/2021 | 11/22/2021 | 11/30/2021 |

| | | | | | | | | |
|----|------------|---|-----------|-----------------|------------|------------|------------|------------|
| 78 | 11/13/2021 | 1 | Oil & Gas | Not Found | 11/16/2021 | 11/17/2021 | | 12/1/2021 |
| 80 | 11/13/2021 | 1 | Oil & Gas | Type C | 11/16/2021 | 11/17/2021 | | 11/24/2021 |
| 81 | 11/13/2021 | 1 | Oil & Gas | Type A | 11/16/2021 | 11/17/2021 | 11/17/2021 | 11/24/2021 |
| 82 | 11/13/2021 | 1 | Oil & Gas | Type C | 11/16/2021 | 11/17/2021 | | 11/24/2021 |
| 83 | 11/11/2021 | 1 | Landfills | Did not Respond | 11/16/2021 | | | |
| 85 | 11/11/2021 | 1 | Landfills | Type A | 11/16/2021 | 11/17/2021 | 11/18/2021 | 11/22/2021 |
| 87 | 11/11/2021 | 1 | Landfills | Type A | 11/16/2021 | 11/22/2021 | 11/22/2021 | 3/1/2022 |
| 88 | 11/11/2021 | 1 | Landfills | Type A | 11/16/2021 | 11/22/2021 | 11/22/2021 | 3/1/2022 |

Example: Operator Feedback Form sent in 2023

CARB Methane Plume Detection - Oil & Gas Operator Follow-up Form



Fill out this form for each notification from CARB of a plume identified from the plane. Complete all fields if possible.

Facility/Flight Survey Info

| | |
|---|-----------|
| 1 Name of Facility: | |
| 2 Contact Name: | |
| 3 Phone Number: | |
| 4 Email Address: | |
| 5 Identifiers | |
| a. Incidence ID (provided by CARB): | prefilled |
| b. Plume ID(s) (provided by CARB): | prefilled |
| 6 Estimated lat/lon coordinates (provided by CARB): | prefilled |
| 7 Date(s) of plume observation (provided by CARB): | prefilled |

Follow-up Ground Survey

| | |
|--|---------------|
| 8 Date of operator's follow-up ground survey: | |
| 9 Instrument used to locate the leak (. e.g, OGI Camera): | |
| 10 Was an emission source identified by follow-up monitoring? | Please Select |
| 11 Select on the right which of the following best matches the description of the emissions? <i>Description:</i> | Please Select |
| | |
| 12 Select on the right which of the following best describes the location of the emission source? <i>Please provide a longer description:</i> | Please Select |
| | |
| 13 What type of equipment is at the source of the emissions? <i>Please provide a longer description:</i> | Please Select |
| | |
| 14 What type of component is at the source of the emissions? <i>Please provide a longer description:</i> | Please Select |
| | |
| 15 Date of most recent performed monitoring: | |

Follow-up Actions

| | |
|---|--|
| 16 Mitigation actions taken (if it was a leak): | |
| | |
| Repair date: | |
| Concentration of leak after repair (ppmv): | |

A3. The operator feedback form sent to Oil & Gas operators in 2023 for each leak detection.

CARB Methane Plume Detection - Landfill Operator Follow-up Form



Fill out this form for each notification from CARB of a plume identified from the plane. Complete all fields if possible.

Facility/Flight Survey Info

| | |
|---|-----------|
| 1 Name of Facility: | |
| 2 Contact Name: | |
| 3 Phone Number: | |
| 4 Email Address: | |
| 5 Identifiers | |
| a. Incidence ID (provided by CARB): | prefilled |
| b. Plume IDs (provided by CARB): | prefilled |
| 6 Estimated lat/lon coordinates (provided by CARB): | prefilled |
| 7 Date(s) of plume observed (provided by CARB): | prefilled |

Follow-up Ground Survey

| | |
|--|----------------------|
| 8 Date of operator's follow-up ground survey: | |
| 9 Instrument used to locate the leak (e.g. Fisher Scientific TVA2020): | |
| 10 Was an emission source identified by follow-up monitoring? | Please Select |
| 11 Select on the right which of the following best matches the description of the emissions? | Please Select |

Description:

| | |
|---|----------------------|
| 12 Select on the right which of the following best describes the location of the emission source? | Please Select |
| Please provide a longer description: | |
| | |

13 Select and describe the most likely cause of the leak (can select multiple):

| | |
|---|---|
| <input type="checkbox"/> Collection system downtime | <input type="checkbox"/> Damaged component |
| <input type="checkbox"/> Offline gas collection well | <input type="checkbox"/> Insufficient vacuum |
| <input type="checkbox"/> Construction – New well installation | <input type="checkbox"/> Wellbore seal (or other surface penetration) |
| <input type="checkbox"/> Construction – Other | <input type="checkbox"/> Maintenance/Repair |
| <input type="checkbox"/> Cover cracks | <input type="checkbox"/> Other |

Please provide a longer description:

| | |
|---|--|
| 14 Date(s) of most recent prior leak monitoring | |
| a. Date of last surface emissions monitoring: | |
| b. Date of last component leak monitoring: | |

| | |
|---|----------------------|
| 15 Was this location monitored in the previous quarterly/annual Landfill Methane Regulation (LMR) surface emissions or quarterly component leak monitoring? | Please Select |
| <i>If not, please state why the area was excluded from monitoring (construction, active working face, steep slope, etc.)</i> | |
| | |

| | |
|---|----------------------|
| 16 Is this location planned for inclusion in the next quarterly/annual LMR monitoring? | Please Select |
| <i>Please state why the area will not be monitored (construction, active working face, steep slope, etc.)</i> | |
| | |

Follow-up Actions

| | |
|---|--|
| 17 Mitigation actions taken (if it was a leak): | |
| Repair date: | |
| Concentration of leak after repair (ppmv): | |

A4. The operator feedback form sent to landfills operators in 2023 for each leak detection.

Complete Incidence List from 2023

Table A2. List of all incidences that were sent to operators in 2023.

| Incidence ID | Earliest | Number of Plumes in Incidence | Sector | Incidence Emission Type | Incidence Notification Date | Incidence Inspection Date | Incidence Mitigation Date | Incidence Reply Date |
|--------------|-----------|-------------------------------|-----------|-------------------------|-----------------------------|---------------------------|---------------------------|----------------------|
| 3 | 6/12/2023 | 2 | Oil & Gas | Type A | 6/15/2023 | 6/16/2023 | 6/20/2023 | 6/27/2023 |
| 4 | 6/12/2023 | 1 | Oil & Gas | Type A | 6/15/2023 | 6/15/2023 | 6/20/2023 | 6/29/2023 |
| 5 | 6/12/2023 | 1 | Oil & Gas | Type A | 6/15/2023 | 6/15/2023 | 6/16/2023 | 6/19/2023 |
| 6 | 6/12/2023 | 3 | Oil & Gas | Not found | 6/15/2023 | 6/15/2023 | | 6/19/2023 |
| 7 | 6/12/2023 | 1 | Oil & Gas | Type A | 6/15/2023 | 6/15/2023 | 6/15/2023 | 6/27/2023 |
| 8 | 6/12/2023 | 1 | Oil & Gas | Type C | 6/15/2023 | 6/15/2023 | 6/15/2023 | 6/27/2023 |
| 9 | 6/12/2023 | 1 | Oil & Gas | Type B | 6/15/2023 | 6/27/2023 | | 6/28/2023 |
| 10 | 6/12/2023 | 4 | Oil & Gas | Type A | 6/15/2023 | 6/16/2023 | 7/7/2023 | 7/17/2023 |
| 11 | 6/12/2023 | 2 | Oil & Gas | Type A | 6/15/2023 | 6/15/2023 | 6/15/2023 | 6/27/2023 |
| 13 | 6/12/2023 | 10 | Oil & Gas | Type B | 6/15/2023 | 6/22/2023 | | 6/22/2023 |
| 16 | 6/12/2023 | 2 | Oil & Gas | Type C | 6/15/2023 | 6/22/2023 | 6/12/2023 | 6/26/2023 |
| 18 | 6/12/2023 | 2 | Oil & Gas | Type A | 6/15/2023 | 6/17/2023 | 6/17/2023 | 6/28/2023 |
| 20 | 6/12/2023 | 2 | Oil & Gas | Type C | 6/15/2023 | 6/19/2023 | | 6/27/2023 |
| 21 | 6/12/2023 | 5 | Oil & Gas | Type B | 6/15/2023 | 6/20/2023 | | 6/29/2023 |
| 22 | 6/12/2023 | 5 | Landfills | Type A | 6/15/2023 | 6/16/2023 | | 6/30/2023 |
| 23 | 6/12/2023 | 3 | Oil & Gas | Type B | 6/15/2023 | 6/16/2023 | | 6/19/2023 |
| 24 | 6/12/2023 | 1 | Oil & Gas | Type A | 6/15/2023 | 6/19/2023 | 6/29/2023 | 6/29/2023 |
| 25 | 6/12/2023 | 1 | Oil & Gas | Type C | 6/15/2023 | 6/19/2023 | 6/20/2023 | 6/27/2023 |
| 28 | 6/12/2023 | 2 | Oil & Gas | Type A | 6/15/2023 | 6/15/2023 | 6/15/2023 | 6/27/2023 |
| 29 | 6/12/2023 | 1 | Oil & Gas | Not found | 6/15/2023 | 6/20/2023 | | 6/26/2023 |
| 30 | 6/12/2023 | 3 | Oil & Gas | Type A | 6/15/2023 | 6/21/2023 | 6/28/2023 | 6/29/2023 |

| | | | | | | | | |
|----|-----------|---|-----------|-----------------|-----------|-----------|-----------|-----------|
| 31 | 6/12/2023 | 1 | Landfills | Not found | 6/16/2023 | 6/19/2023 | | 6/30/2023 |
| 32 | 6/12/2023 | 1 | Oil & Gas | Not found | 6/16/2023 | 6/16/2023 | | 6/19/2023 |
| 33 | 6/13/2023 | 2 | Landfills | Type C | 6/16/2023 | 6/27/2023 | 6/21/2023 | 8/31/2023 |
| 35 | 6/13/2023 | 1 | Landfills | Type A | 6/16/2023 | 6/19/2023 | 7/26/2023 | 8/14/2023 |
| 36 | 6/13/2023 | 3 | Landfills | Type C | 6/16/2023 | | | 9/15/2023 |
| 37 | 6/12/2023 | 6 | Oil & Gas | Type B | 6/16/2023 | 6/20/2023 | | 6/29/2023 |
| 38 | 6/12/2023 | 1 | Oil & Gas | Type B | 6/16/2023 | 6/21/2023 | | 6/27/2023 |
| 39 | 6/13/2023 | 7 | Landfills | Type C | 6/16/2023 | 6/21/2023 | 5/20/2023 | 8/31/2023 |
| 40 | 6/13/2023 | 6 | Landfills | Did not respond | 9/5/2023 | | | |
| 42 | 6/12/2023 | 1 | Oil & Gas | Not found | 6/16/2023 | 6/16/2023 | | 6/27/2023 |
| 43 | 6/13/2023 | 2 | Landfills | Type A | 6/16/2023 | 6/22/2023 | 6/22/2023 | 7/14/2023 |
| 44 | 6/13/2023 | 2 | Landfills | Type C | 6/16/2023 | | | 8/22/2023 |
| 46 | 6/13/2023 | 4 | Landfills | Did not respond | 6/16/2023 | | | |
| 47 | 6/13/2023 | 1 | Landfills | Type C | 6/16/2023 | | | 9/21/2023 |
| 48 | 6/13/2023 | 3 | Landfills | Type C | 6/16/2023 | 6/29/2023 | | 7/9/2023 |
| 49 | 6/12/2023 | 2 | Oil & Gas | Type A | 6/16/2023 | 6/21/2023 | 6/21/2023 | 6/28/2023 |
| 50 | 6/13/2023 | 3 | Landfills | Type C | 6/16/2023 | 6/21/2023 | | 6/26/2023 |
| 51 | 6/12/2023 | 2 | Oil & Gas | Type A | 6/16/2023 | 6/20/2023 | 6/20/2023 | 6/29/2023 |
| 52 | 6/12/2023 | 1 | Oil & Gas | Type A | 6/16/2023 | 6/19/2023 | 6/19/2023 | 6/27/2023 |
| 53 | 6/12/2023 | 2 | Oil & Gas | Not found | 6/16/2023 | 6/20/2023 | | 6/29/2023 |
| 54 | 6/12/2023 | 1 | Oil & Gas | Type A | 6/16/2023 | 6/20/2023 | 6/20/2023 | 6/29/2023 |
| 55 | 6/12/2023 | 2 | Oil & Gas | Type B | 6/16/2023 | 6/16/2023 | | 6/27/2023 |
| 56 | 6/12/2023 | 2 | Oil & Gas | Type A | 6/16/2023 | 6/20/2023 | 6/20/2023 | 6/29/2023 |
| 57 | 6/12/2023 | 3 | Oil & Gas | Not found | 6/16/2023 | 6/17/2023 | | 6/29/2023 |

| | | | | | | | | |
|----|-----------|---|-----------|-----------|-----------|-----------|------------|-----------|
| 58 | 6/13/2023 | 2 | Landfills | Type C | 6/16/2023 | 6/19/2023 | | 6/22/2023 |
| 59 | 6/14/2023 | 8 | Landfills | Type C | 6/19/2023 | | | 6/30/2023 |
| 60 | 6/14/2023 | 1 | Oil & Gas | Type A | 6/19/2023 | 6/20/2023 | 6/20/2023 | 7/13/2023 |
| 61 | 6/14/2023 | 1 | Oil & Gas | Type A | 6/19/2023 | 6/19/2023 | 6/19/2023 | 6/27/2023 |
| 62 | 6/14/2023 | 1 | Oil & Gas | Type A | 6/19/2023 | 6/20/2023 | | 7/13/2023 |
| 63 | 6/14/2023 | 1 | Oil & Gas | Type B | 6/19/2023 | 6/20/2023 | | 7/13/2023 |
| 64 | 6/14/2023 | 2 | Oil & Gas | Type A | 6/19/2023 | 6/21/2023 | 6/21/2023 | 7/13/2023 |
| 65 | 6/12/2023 | 3 | Oil & Gas | Type A | 6/19/2023 | 6/23/2023 | 7/18/2023 | 7/13/2023 |
| 66 | 6/14/2023 | 1 | Oil & Gas | Type A | 6/26/2023 | 6/27/2023 | | 7/6/2023 |
| 67 | 6/14/2023 | 1 | Oil & Gas | Not found | 6/19/2023 | 6/23/2023 | | 7/13/2023 |
| 69 | 6/14/2023 | 2 | Oil & Gas | Type B | 6/19/2023 | 6/23/2023 | 6/23/2023 | 7/13/2023 |
| 70 | 6/14/2023 | 1 | Oil & Gas | Not found | 6/19/2023 | 6/20/2023 | | 7/13/2023 |
| 71 | 6/14/2023 | 3 | Oil & Gas | Not found | 6/15/2023 | 6/23/2023 | | 6/29/2023 |
| 72 | 6/14/2023 | 1 | Oil & Gas | Type A | 6/19/2023 | 6/20/2023 | 6/20/2023 | 7/13/2023 |
| 73 | 6/14/2023 | 1 | Oil & Gas | Type C | 6/19/2023 | 6/20/2023 | 6/20/2023 | 7/13/2023 |
| 74 | 6/15/2023 | 4 | Landfills | Type C | 6/19/2023 | | | 7/9/2023 |
| 75 | 6/15/2023 | 2 | Landfills | Type C | 6/19/2023 | 6/15/2023 | 10/25/2023 | 6/23/2023 |
| 76 | 6/14/2023 | 1 | Oil & Gas | Type C | 6/19/2023 | 6/20/2023 | | 7/13/2023 |
| 77 | 6/15/2023 | 3 | Landfills | Type A | 6/19/2023 | 6/8/2023 | 7/27/2023 | 8/14/2023 |
| 78 | 6/14/2023 | 2 | Oil & Gas | Not found | 6/19/2023 | 6/20/2023 | | 7/13/2023 |
| 79 | 6/14/2023 | 1 | Oil & Gas | Not found | 6/19/2023 | 6/20/2023 | | 7/13/2023 |
| 80 | 6/15/2023 | 1 | Landfills | Type C | 6/19/2023 | 6/21/2023 | 6/15/2023 | 8/31/2023 |
| 81 | 6/15/2023 | 4 | Landfills | Type A | 6/19/2023 | 6/19/2023 | 7/26/2023 | 8/14/2023 |
| 84 | 6/15/2023 | 2 | Landfills | Type C | 6/19/2023 | 6/28/2023 | 6/23/2023 | 7/9/2023 |

| | | | | | | | | |
|-----|-----------|---|-----------|-----------------|-----------|-----------|-----------|-----------|
| 100 | 6/17/2023 | 1 | Landfills | Type A | 6/21/2023 | 6/29/2023 | | 8/30/2023 |
| 101 | 6/12/2023 | 3 | Oil & Gas | Type B | 6/21/2023 | 6/22/2023 | | 6/26/2023 |
| 102 | 6/17/2023 | 1 | Landfills | Type C | 6/21/2023 | | | 7/17/2023 |
| 103 | 6/17/2023 | 3 | Landfills | Type A | 6/21/2023 | 6/26/2023 | | 7/6/2023 |
| 105 | 6/17/2023 | 6 | Landfills | Type A | 6/21/2023 | 6/21/2023 | 6/27/2023 | 7/6/2023 |
| 106 | 6/17/2023 | 2 | Landfills | Type A | 6/21/2023 | 6/22/2023 | 6/27/2023 | 7/6/2023 |
| 107 | 6/17/2023 | 1 | Landfills | Type A | 6/21/2023 | 7/3/2023 | 7/13/2023 | 8/25/2023 |
| 108 | 6/17/2023 | 5 | Landfills | Type C | 6/21/2023 | | | 8/21/2023 |
| 109 | 6/16/2023 | 3 | Oil & Gas | Type A | 6/21/2023 | 6/26/2023 | 7/5/2023 | 7/5/2023 |
| 110 | 6/17/2023 | 1 | Landfills | Not found | 6/21/2023 | | | 8/22/2023 |
| 112 | 6/17/2023 | 2 | Landfills | Did not respond | 6/21/2023 | | | |
| 113 | 6/16/2023 | 3 | Oil & Gas | Type B | 6/21/2023 | 6/22/2023 | | 6/26/2023 |
| 114 | 6/16/2023 | 1 | Oil & Gas | Did not respond | 6/21/2023 | | | |
| 115 | 6/16/2023 | 4 | Oil & Gas | Type B | 6/21/2023 | 6/22/2023 | | 6/26/2023 |
| 117 | 6/16/2023 | 2 | Oil & Gas | Type B | 6/21/2023 | 6/23/2023 | 7/23/2023 | 7/17/2023 |
| 121 | 6/17/2023 | 1 | Landfills | Type C | 6/21/2023 | | | 7/6/2023 |
| 122 | 6/17/2023 | 3 | Landfills | Type C | 6/22/2023 | 6/18/2023 | | 8/9/2023 |
| 123 | 6/17/2023 | 3 | Landfills | Type A | 6/22/2023 | 6/22/2023 | 6/23/2023 | 7/14/2023 |
| 124 | 6/18/2023 | 1 | Landfills | Type A | 6/22/2023 | | | 7/31/2023 |
| 125 | 6/17/2023 | 4 | Landfills | Type A | 6/22/2023 | 6/23/2023 | 7/21/2023 | 8/22/2023 |
| 126 | 6/17/2023 | 4 | Landfills | Type A | 6/22/2023 | 6/23/2023 | 7/7/2023 | 8/22/2023 |
| 127 | 6/18/2023 | 2 | Landfills | Type C | 6/22/2023 | 6/22/2023 | 6/22/2023 | 7/14/2023 |
| 128 | 6/18/2023 | 4 | Landfills | Type C | 6/22/2023 | | | 9/21/2023 |
| 131 | 6/20/2023 | 2 | Oil & Gas | Not found | 6/23/2023 | 6/26/2023 | | 7/13/2023 |

| | | | | | | | | |
|-----|-----------|---|-----------|-----------------|-----------|-----------|-----------|-----------|
| 132 | 6/20/2023 | 4 | Oil & Gas | Type A | 6/23/2023 | | 6/28/2023 | 6/28/2023 |
| 133 | 6/20/2023 | 2 | Oil & Gas | Type C | 6/23/2023 | 6/23/2023 | 6/20/2023 | 6/27/2023 |
| 134 | 6/20/2023 | 1 | Oil & Gas | Type B | 7/31/2023 | 8/1/2023 | | 8/8/2023 |
| 135 | 6/15/2023 | 3 | Landfills | Type C | 6/23/2023 | | | 8/14/2023 |
| 136 | 6/20/2023 | 1 | Oil & Gas | Type B | 6/23/2023 | 6/27/2023 | | 7/3/2023 |
| 137 | 6/20/2023 | 2 | Landfills | Did not respond | 6/23/2023 | | | |
| 138 | 6/20/2023 | 1 | Landfills | Type A | 6/23/2023 | 6/26/2023 | 7/6/2023 | 6/27/2023 |
| 140 | 6/17/2023 | 4 | Landfills | Did not respond | 6/26/2023 | | | |
| 141 | 6/17/2023 | 7 | Landfills | Did not respond | 6/26/2023 | | | |
| 142 | 6/21/2023 | 1 | Landfills | Type C | 6/26/2023 | 6/29/2023 | 7/13/2023 | 8/30/2023 |
| 143 | 6/21/2023 | 2 | Landfills | Type C | 6/26/2023 | 7/3/2023 | 7/13/2023 | 8/25/2023 |
| 144 | 6/21/2023 | 3 | Landfills | Type C | 6/26/2023 | | | 7/31/2023 |
| 145 | 6/21/2023 | 1 | Landfills | Type A | 6/26/2023 | 6/22/2023 | 6/23/2023 | 7/14/2023 |
| 146 | 6/21/2023 | 1 | Landfills | Did not respond | 6/26/2023 | | | |
| 148 | 6/21/2023 | 1 | Landfills | Type C | 6/26/2023 | | | 8/21/2023 |
| 149 | 6/21/2023 | 3 | Landfills | Type C | 6/26/2023 | 7/3/2023 | 7/13/2023 | 8/25/2023 |
| 153 | 6/25/2023 | 1 | Landfills | Did not respond | 6/28/2023 | | | |
| 154 | 6/25/2023 | 1 | Landfills | Type A | 6/29/2023 | 6/29/2023 | 6/26/2023 | 7/14/2023 |
| 155 | 6/23/2023 | 1 | Landfills | Did not respond | 6/29/2023 | | | |
| 156 | 6/27/2023 | 1 | Oil & Gas | Not found | 6/30/2023 | 7/3/2023 | | 7/13/2023 |
| 157 | 6/27/2023 | 1 | Oil & Gas | Type B | 6/30/2023 | 7/7/2023 | | 7/13/2023 |
| 158 | 6/14/2023 | 2 | Oil & Gas | Type B | 6/30/2023 | 7/7/2023 | | 7/13/2023 |

| | | | | | | | | |
|-----|-----------|---|-----------|-----------|-----------|-----------|-----------|-----------|
| 160 | 6/27/2023 | 1 | Oil & Gas | Type B | 6/30/2023 | 7/7/2023 | | 7/13/2023 |
| 161 | 6/27/2023 | 1 | Oil & Gas | Type A | 6/30/2023 | 7/7/2023 | 7/7/2023 | 7/13/2023 |
| 162 | 6/27/2023 | 1 | Oil & Gas | Type B | 6/30/2023 | 7/12/2023 | | 7/13/2023 |
| 164 | 6/27/2023 | 1 | Oil & Gas | Type A | 6/30/2023 | 6/30/2023 | 6/30/2023 | 7/10/2023 |
| 165 | 6/27/2023 | 1 | Oil & Gas | Type A | 6/30/2023 | 6/30/2023 | 7/14/2023 | 7/17/2023 |
| 166 | 6/27/2023 | 1 | Oil & Gas | Type C | 6/30/2023 | 6/30/2023 | | 7/6/2023 |
| 171 | 6/28/2023 | 1 | Oil & Gas | Type C | 7/3/2023 | 7/5/2023 | 6/28/2023 | 7/14/2023 |
| 172 | 6/16/2023 | 3 | Oil & Gas | Type A | 7/3/2023 | 7/5/2023 | 7/21/2023 | 7/21/2023 |
| 173 | 6/28/2023 | 1 | Oil & Gas | Not found | 7/5/2023 | | | 7/5/2023 |
| 174 | 6/28/2023 | 1 | Oil & Gas | Type B | 7/3/2023 | 7/6/2023 | | 7/14/2023 |
| 175 | 6/28/2023 | 2 | Oil & Gas | Type C | 7/3/2023 | 7/5/2023 | | 7/14/2023 |
| 176 | 6/28/2023 | 1 | Oil & Gas | Type A | 7/3/2023 | 7/5/2023 | 7/21/2023 | 7/21/2023 |
| 177 | 6/27/2023 | 1 | Oil & Gas | Type B | 6/15/2023 | | | 7/6/2023 |